

Sep 1994

HAM S P L A T T E R



FORT WAYNE
RADIO CLUB

FORT WAYNE, IN


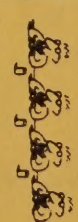
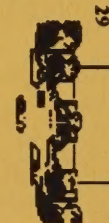
FROM: THE FORT WAYNE RADIO CLUB
P.O. BOX 15127
FORT WAYNE, IND 46885

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TO:

K90MA/KA9YYI
JIM & ANNE PLIETT
16702 WAPPES RD.
CHURUBUSCO, IN 46723

September 1994 - Communications Calendar

SUN	MON	TUE	WED	THUR	FRI	SAT
<p>4 Swap net 19:30 Sloppy Code 21:00</p> <p>< Bulgarian DX < All Asian SSB DX > Radio Club Panama <</p>	<p>5 Michigan QRP</p> <p>LABOR DAY</p>	<p>6 Hunt. ARES 20:00 TNT 20:00</p>	<p>7 Whitley ARES 19:15 YLRL Howdy Days ></p>	<p>8 FWRC Board 19:30</p>	<p>9 < YLRL Howdy Days</p>	<p>10 ARRL VHF QSO > Worked All Europe SSB ></p> <p>• Summit City Hamfest •</p>
<p>11 Swap Net 19:30 Sloppy Code 21:00</p> <p>< ARRL VHF QSO < Worked All Europe SSB</p> <p>• Findlay Hamfest •</p>	<p>12 </p> <p>Fort Wayne FoxHunt 19:00 AC Fairgrounds</p>	<p>13 Hunt. ARES 20:00 TNT 20:00</p>	<p>14 Whitley ARES 19:15</p>	<p>15</p>	<p>16 </p> <p>FWRC Meeting 19:30</p>	<p>17 ARRL 10 GHz Cumulative ></p>
<p>18 Swap Net 19:30 Sloppy Code 21:00</p> <p>< ARRL 10 GHz Cumulative</p>	<p>19</p>	<p>20 Hunt. ARES 20:00 TNT 20:00</p>	<p>21 Whitley ARES 19:15</p>	<p>22</p>	<p>23 1st Day of Autumn</p>	<p>24 CQ WW RTTY ></p>
<p>25 Swap Net 19:30 Sloppy Code 21:00</p> <p>< CQ WW RTTY</p>	<p>26</p>	<p>27 Hunt. ARES 20:00 TNT 20:00</p>	<p>28 Whitley ARES 19:15</p>	<p>29 </p> <p>FWRC Board 19:30</p>	<p>30</p>	<p>October 1994</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31</p>

Check QST and CQ for Contest Times and Rules

(Times listed are in Eastern Standard Time GMT-5 hours)

[Key: > Event begins < Event ends]

NET FREQS: TNT 146.76 Murphy Swap 146.94 Sloppy Code 7.1405 Huntington ARES 146.685 Whitley ARES 147.150

Daily Nets: Ft Wayne 6m 50.58 (simplex) 19:00 | IMO Traffic 146.88 18:30 | 21 Repeater Group 147.150 21:00 | Auburn 147.360 18:00

The Ham splatter

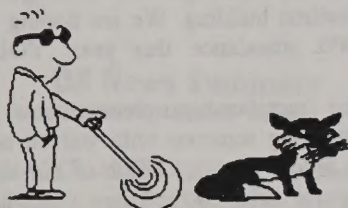
A Newsletter for the Fort Wayne Radio Club Members

Vol XX Issue 9

September 1994

Cliff's Notes:

Did you see the newspaper headlines on the morning of August 8th ? It read. "Blind man finds fox in the park, in the dark, with sonar cane". You figure it out?



Hip, Hip Hooray ! Our new 76 controller is now up and running. Special thanks to Carl Rittinhouse N9NRO, Jim Pliet K9OMA, Bill Hall WD9HII, and Bob Streeter AB9U for their time and efforts. More good news ! The NEW 91 autopatch has been ordered and will be up and running soon. It will have some new capabilities. Your patience has been appreciated. It takes a little while to make the fine adjustments.

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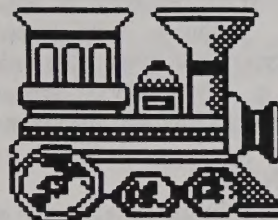
Remember at last months meeting, I told of the elderly lady who contacted me in appreciation of a good deed preformed by a FWRC member ? Guess who it was ?Our own WB9VCI Paul Taylor. Way to go Paul! You're a good citizen and a proud American. And besides, it got the club some good promo.

.....

Hear ye , Hear ye ! The FWRC Proudly Presents the Fifth Annual Summit City Hamfest and Computer Show. Folks, it's not just for hams. It's for everyone who loves electronics. Tell your neighbor who just bought that PC. Call and tell that friend who said he or she would like to get into Amateur Radio. It's lots of radios, it's lots of computers, it's lots of fun. Bring that friend with you! September 10th. Dont miss out!

.....

Have you been dancing to the LocoMotion and don't know why? Do you think Dino KR9V has a striking resemblance to Casy Jones? Then all you rounders gather near. Grab a chair and blow off some steam at this months meeting with CHOOOOOO-CHOOOOO CHARLIE.



That's right ! Choo Choo Charlie Willer WB9ULN will be taking us a ride through time on one of Fort Waynes original street cars. All Aboard while Charlie takes us from the early days of the steam locomotive to todays powerful diesel electric and rocket powered engines. The video is narrated by W9FJT Bob Sievers. The pictures of old Fort Wayne are terrific. If you want to see and hear about the history of railroading in Fort Wayne the FWRC is the place to be on September 10th. Hop aboard the Wabash Cannonball. Don't be late ! The train pulls out of the station at 7:30. Aaalll Aboard.....

Well, fellow amateur radio enthusiasts that about wraps it up for this version of Cliff Notes. I'm all out of steam! {No pun intended, and please no comments about hot air}. See ya'll at the Hamfest.

P.S. I now have a direct line to the shack. It's 483-7570.

"Saloon for Now"

73' Cliffie N9MKB

Club Handbooks

If you are a new member to the Fort Wayne Radio Club, you are entitled to a copy of the FWRC Handbook. It contains vital information about the Club, the Constitution and Bylaws, member services, VHF FM and ATV repeater operation instructions, and much more. Please see one of the officers at any regular Club meeting to pick up your copy.



August 1994 Minutes

The following are the recorded minutes of the Fort Wayne Radio Club:

The August meeting of the Fort Wayne Radio Club was called to order at 7:45 pm by the President Cliff Shreve N9MKB. Introductions followed.

Minutes of the July meeting were read by Jean Anderson N9PXF standing in for Carole Burke WB9RUS. Minutes stood approved as read. Treasurers report was given: the following expenses were paid in July - \$29.00 propane, \$95.12 for antennas and \$59.29 for tent maintenance.

OLD BUSINESS

The controller for the 76 repeater is programmed and will be installed Monday.

Hamfest report was given (see next article for details) Please get your tickets from Bill Kindred. Cliff asked for volunteers to help hang fliers around town Sunday. Ted Hughes made a challenge to the club members. Anyone who would get 25 tickets from Bill Kindred (at the August general meeting) and sell them by Friday August 25, he would give them 2 tickets to the Grand Nationals Labor Day weekend in Indianapolis.

NEW BUSINESS

The 91 autopatch was out and is now back on the air. The power supply quit and is now temporarily working using the old power supply which was made in the 60's. Being very old equipment we are not sure how long this will work before it quits. Bill Hall made motion to look into buying new equipment for the 91 autopatch at cost up to \$1000.00. Motion was seconded by Bob Curts. Motion carried.

Bill Hall will be the nomination committee. September will be taking nominations for election of new officers. October the slate of nominations will be given to the club with elections at the November meeting.

Suggestions for the Club's annual Christmas Dinner was put before the members. Dee Kindred made motion that we have it at the church as a carry in like we had for the spring banquet. Motion seconded by Walt Wood. Bill Hall made an amendment to the motion that the club furnish the meat, drink, and table service. Theresa Deventer seconded the motion. Motions carried. Lisa Wolf has volunteered to be chairman for the Christmas Banquet.

FoxHunt - Look in your Hamsplatter to see what excitement happened last month. Who made the HEADLINES of the local paper???????

Cliff received a phone call recently from a 90 year old lady that one of our club members had stopped to

help her when she was stranded out on the highway with a flat tire. She did not get their name but they were wearing a FWRC club jacket. She wanted us to know how grateful she felt that there still are such wonderful people in this world. She did not get your name, but you know who you are and she wishes to thank you for your generosity and kindness.

Mike Good N9NS from Indianapolis gave a talk and slide presentation on his DXpedition to Kingman Reef and Palmyra Island. The slide presentation was enjoyed by all.

September speaker will be Choochoo Charlie. He will speak on the history of railroads in Fort Wayne.

Respectfully submitted, Jean Anderson N9PXF

Summit City Computer Show & Hamfest

Hamfest Report....as of 8/28/94 we are nearly sold out in both of the buildings....and have some space left in the Pavilion building. We are hoping to draw 1500 to 2000 attendance this year....YOU CAN HELP!!

Yes you the membership....please come to the FEST....Please bring someone with you....a neighbor, a friend or a fellow worker....Much of our show this year is computer oriented....software....and hardware as well as New & Used ham gear....as well as hat & jacket makers....badge & sign makers and some novelty vendors. Of course we also have "VE TESTING" for new and upgrades of Ham Licenses. And last but probably should be first! We have some of the best food available at any hamfest. As you can see there is something for everyone....not just for HAMS....but everyone. Bring the family and bring your friends to SUMMIT CITY COMPUTER SHOW & HAMFEST 10 September 1994. Tickets available from members and Pembleton Electronics \$4.00 advance or \$5.00 at the door.

See you at the fest! de JOHN K9UWA

P.S. if you need a table or tailgate space call me at 637-6426.

Solar Propagation Forecast

FWDXA - KT7H

Solar activity is low. Geomagnetic activity has been up a bit, peaking with an A index of 26 on August 14. Solar flux should stay around 80 for the next month. Geomagnetic conditions may become unsettled again around September 8 through 10.

Low solar activity means that the maximum usable frequency will be low over most paths. 20 and 30 meters are probably the best overall bands for long distance communication. Sunspot numbers from August averaged 61. 10.7 cm flux averaged 81.

The path projection for this week is from Jacksonville, Florida to Chad: 80 meters should be

open from 0000 to 0445z, peaking around 0100 to 0130. 40 meters looks good from 2300 to 0530. 30 meters looks best from 2200 to 0300, and may possibly open again around 0500 to 0600. 20 meters should be open from 1930 to 0100. On many days, 17 meters should be open from 1600 to 2300, and on a few days 15 meters may be open around 1830 to 2030. 12 and 10 meters do not look good over this path at this time.



DX News Summary

- KB8NW/OPDX/BARF-80 BBS

3A, MONACO AND 4U1ITU. Luciano, I1YRL, plans to be active from 3A and 4U1ITU from mid August until November.

3D2, ROTUMA. Ruvendra, 3D2RP, was heard active on 20 meters SSB, 14211 kHz at 0345z.

5R, MADAGASCAR. Karl, 5R8KH, was heard on 21295 kHz around 1700z. QSL via WB8LFO.

9X, RWANDA. VE3MJQ will be in Kigali for six months starting from August 15th. He expects to receive a callsign and will operate mostly on SSB. QSL via VE2PR.

OS, BELGIUM. The DXNL reports that a special prefix of OS may be used by Belgium stations from September 1 until December 31, 1994. No details were given why.

S61, SINGAPORE. Some stations in 9V1-land will be using S61 prefix until September 12th to commemorate the 25th anniversary of the Singapore Amateur Radio League.

1A0KM STATUS (From the Huntsville, LA Hamfest). At the DXCC Forum, Bill, NC1L (of the DXCC Desk) announced that the latest 1A0KM operation has been approved for DXCC credit.

5A, LIBYA. A station signing 5AARG was active on 14242 kHz starting around 2240z for about an hour on August 26th. The operator stated his name was Ali, operating from Tripoli and that he could not QSL at this time.

9G, GHANA. The members of the Central Arizona DX Association will be very active in the upcoming

contest season as they make plans for a DXpedition to Ghana. Their operations begin October 26th through November

4th and they plan to be an entry in the CQ World Wide SSB Contest, October 29-30th. Their contest callsign will be 9G5TL. Outside the contest the group will have 3 stations working 160-10 meters including WARC bands. Operation will include SSB, CW and RTTY modes. QSL 9G5TL via KG7XC.

A second group of members from the Central Arizona DX Association and friends from the UK (an all FOC group) will follow the SSB operation of 9G5TL to Ghana for a multi-multi or multi single operation in the CQ WW CW contest, between November 20th to November 30. The contest takes place November 26-27th and their contest callsign will be 9G5NN.

Meanwhile, John, GM0FQV, arrived recently in Ghana and will be there working on a construction project for the next couple of years. John was signing GM0FQV/9G1, but as of the past weekend he has received his 9G1JB callsign. He has been heard on 15 and 20 meters SSB recently around 2300z. QSL only to G4XTA.

HS, THAILAND. Fred, K3ZO, is again operating as HS0ZAR. This time he will be there until October 10th. Look for him on 20 (and maybe 40) meters CW between 1130-1600z. QSL to K3ZO or via the bureau.

KH0, SAIPAN ISLAND. JA6CNL (KR4VN) will be active from here as KH0/KR4VN from September 10-13th. Suggested frequencies are: CW - 7025, 10102, 14025, 18070, 21025, 24895 and 28025 kHz and SSB - 7080, 14195, 18150, 21295, 24950 and 28495 kHz. QSL via JA6CNL, or via JARL.

SV/A, MOUNT ATHOS. Monk Apollo will be very active on RTTY (which is now reportedly his favorite mode) in October, or possibly sooner. The best time to catch him is on Sundays after he has finished his work around the monastery.

V7, MARSHALL ISLANDS. Ken, V73C, reports that he will be assisting in a big V7X operation in the CQ WW SSB Contest (October 29 and 30th). The other operators who will be there are KH6HH, KH6M and AH6IO. QSL (direct) to KH6HH.

VK9, COCOS-KEELING ISLANDS. JA3IG will be active as VK9IG from Cocos Keeling Island from September 7-10. Operations will be on 40-10 meters CW/SSB. QSL via JA3IG.

YA, AFGHANISTAN. QSN reports from the Southern states and East coast stations that there has been activity on 20 meters CW from a YA/RW6AC (with a weak signal). This station has not been heard since May and initial indications were that it was to operate until June. Check around 14010 kHz between 1100 and 1230z. QSL to Box 16, Armavir, Russia.



Allen County Fox Hunt

The August Fox Hunt was won by Jim Pliett K9OMA. Jim technically won the hunt on points, but Cliff, N9MKB found the fox first. The hounds wound up in Lyons park near the Hazelwood station. A placebo transmitter was on the grounds with a note stating that it "was not the fox". Jim and several others were diligently searching around with a massive array of electronics and antennas. By the time Cliff got there, it was getting too dark for him to see. He missed the fake radio and suddenly received a strong tone on his "pickle fork" DF unit (a simple electronic circuit). Cliff followed the tone right up to the car where the fox was hiding. It goes to show that looks can be deceiving and that people with reduced vision tend to be more acutely aware of their surroundings by "sound" Hi -ed.

--- NEWS FLASH !!! JUST IN ---

There will be a special fox hunt at the Summit City Hamfest. Enough interest has been expressed and it will be an official event. Tune in to the '76 repeater for more details on the Hamfest FoxHunt, via the electronic voice recording message.

Also, the usual Allen County/Fort Wayne Area Fox Hunt will take place on Monday, September 12 (two days after the Hamfest) at 19:00. Meet at the Allen County Fairgrounds on Carroll Rd. You don't have to own DF equipment to participate. There is always plenty of room to ride along! The fox will be on 146.43 MHz.

Electronic Reliability - Kris KF9AW

One of the many problems in the electronics industry involves the soldering of electronic components. High priced pieces of equipment have completely shut down due to single or board-wide solder joint failures which could have been avoided had the proper materials and techniques been used. This month we'll cover a few aspects of the materials of solder joint interfaces and how they might affect the amateur radio hobbyist.

The proper selection of materials is essential in providing long-term operation of an electronic assembly. Typically, most components use copper leads which have been tin plated or coated with tin/lead solder. These components readily wet to 60/40 tin/lead solder and don't pose much of a problem. In some instances, you will find components which have gold plating.

This convention is typically used on a component which is expected to be plugged into and removed from a socket for several repetitions or as a means of maintaining lead solderability on parts which are expected to sit in a stockroom or warehouse for several years before use. Gold does not readily oxidize when exposed to air, and is ductile in nature, tending to "smear" when mated. This property of gold presents a clean, low resistance surface to contact with the socket conductors. You will often find gold plating on memory chips and erasable ROMs.

Gold plated pins are not ideal when the component is being soldered onto a circuit board. During the soldering operation, the gold plating dissolves into the molten solder. As the solder joint cools, an intermetallic metal of gold-tin is formed first and literally "pollutes" the tin-lead solder joint. The gold-tin intermetallic metal tends to be very brittle in nature. Thermal cycling and vibration stress can cold work your polluted solder joints until they form fractures through the intermetallic regions of the joint. The result is a cracked solder joint which acts as an open circuit. This phenomena is known as "gold embrittlement".

Gold embrittlement is not as much of a threat if your components are mounted and clinched in a plated-through-hole circuit board. It is more likely to cause problems on surface mounted components, where the leads are not mechanically secured to the circuit board, but rather "float" in a solder joint.

The best way to combat gold embrittlement is to pre-tin your component leads before you mount them to a circuit board. Use a simple solder pot. Dip the component leads into the solder bath for 4-5 seconds. Do not let the body of the part contact the molten solder and do not force the cooling process with forced air or chill spray. The resulting thermal shock may crack the plastic or ceramic package and compromise the environmental seal. Allow the part to air-cool before subjecting it to any further processing. Perform this operation at least two times to fully dissolve the gold plating from the soldering zone of your leads. You should have a nearly pure coating of tin/lead on the leads (which are usually copper).

To remove the gold contamination from your solder pot, reduce the heat setting until the gold-tin intermetallic crystals start to come out of solution. You can recognize them from their needle-shaped appearance. They will solidify before the tin-lead solder will.

Another type of precious metal used on electrical components is silver. Silver is different from gold in that it rapidly forms a layer of oxide or "tarnish". Anyone who owns a silver plated tea set knows how quickly they tarnish after being polished. Silver is often used to coat and protect materials which rapidly corrode in an outdoor environment, such as copper, because the silver oxide, once formed, stops any further corrosive attack. Silver also dissolves into solder joints during the soldering process.

In this case, it does not embrittle the solder joint, but rather is consumed or leached from the surface of the work piece being soldered. The exposed base metal of the component will then rapidly corrode into oblivion if left outdoors. You will often find silver plating on mating connectors and other electronic hardware which are intended for outdoor use.

To prevent solder leaching, you can purchase silver-bearing solder at any local electronics supply store. It usually comes in varieties of 2-8% silver in the tin/lead solder. When you solder to a silver plated component, using silver-bearing solder, there is already a percentage of silver in the molten solder as it is applied to the work piece. This slows down and often prevents any leaching of silver plating into the solder which yields a corrosion-proof component.

Keep these principles in mind when working on your next project. If you have gold plating, dissolve it. If you have silver plating, use a silver-bearing solder.

Ham Radio Reviews - Larry K9VFE

YAESU FT 990 AND FT 1000

Here is another product review by my friend Ed, WA2UGT. These reviews were written for his club, Stateline Radio Club of New York and New Jersey.

At the end of my last review, I had requested a source to test either of the new top-of-the-line Yaesu HF radios. David, WA0TTF, called me and said he had both transceivers side-by-side in his shack and that I was welcome to test them and compare them with my Kenwood TS 440S (the radio that I have been using as a standard reference). David and I spent a few hours doing just that one recent Saturday, and here are the results.

David's FT-990 and FT-1000 had every option installed. The "D" designation on the FT-1000 indicates the installation of a temperature compensated oscillator for stability. Both radios had all four available filters installed (250 & 500 Hz for CW and 2 & 2.4 kHz for SSB) -- certainly the ideal situation for optimum selectivity.

The FT-1000 has two completely independent receivers which allow tuning an AM station on each side-band, thereby giving a diversity receive effect which enhances copy under certain conditions. I also understand that the second receiver is quite useful in contest conditions. The tuning rate of the receiver was 10 kHz per revolution of the tuning dial. No fine tuning provision is available.

This transceiver also allows for the use of a separate receive antenna, an especially useful feature for 160 meter operation, where separate receive and transmit antennas are often used because of the noisy conditions on the band.

Yaesu got the jump on its competition by giving the FT 1000 a full 200 watt output power.

One final feature which I liked was the indicator for CW "spot" tuning (a green light comes on when you are exactly on the other stations frequency).

The FT-990 is a stripped down version of the FT-1000. The second receiver is missing and several other standard features on the FT 1000 are options on the FT 990.

The FT 990 does have a digital audio filter which was effective to quiet a higher internal receiver noise than we found in the FT 1000. Unfortunately, use of this filter adversely affected weak-signal copy. Overall, the digital audio filter is not nearly as effective as the "slope tuning" available on some of the Kenwood radios.

The FT 990 does not provide for transmit audio monitoring, which I feel is a serious omission. We have all heard stations on the air with improperly adjusted mike gain or processing. This problem can be eliminated with audio monitoring. (Well, the operator does have to make use of the feature, and care what he sounds like)

Our on the air tests of the two rigs began with a search for the Brazilian weak signal ten meter CW beacon on 24.930 MHz.

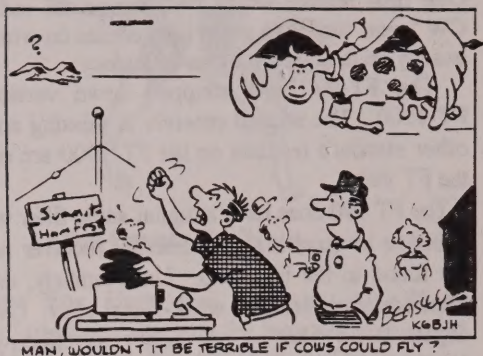
All three rigs (the two Yaesu rigs and my Kenwood TS 440S) received the signal, however, the audio quality of the FT-1000D and the TS-440S was better than that of the FT-990. In addition, the FT-1000D and the TS-440S had lower internal receiver noise than the FT-990. Other FT 990 owners have told me that high receiver noise is not typical and they rate their FT-990 radios as quiet. With these particular radios, however, the FT-1000D was the quietest, followed by the TS-440S and then the FT-990.

In terms of selectivity on SSB, the FT-1000D, when using the 2 kHz filter, sounded better than the TS-440S with a 2.2 kHz filter.

Conversations with two different amateurs (who were comparing the FT-1000 and the Kenwood TS-950SDX in side by side tests) resulted in a slight edge for the Kenwood radios "because of better selectivity control and overall flexibility in operation." Similarly, several other hams who had both the FT-990 and the Kenwood TS 850S transceivers in their shacks said that both were very good radios but the '850 has more useful features and is probably the current "best-buy" in ham radio.

In summary, I have tested and compared ten modern transceivers in recent months and find many similarities between comparing radios and comparing automobiles. They all do the job, but some are smoother, quieter, or easier to handle. And yes, you do get what you pay for -- quality does show through in all the radios I have tested. However, spending two to four times the purchase price of a good moderately priced radio or automobile does not give a proportionate gain in performance. Gains or improvements, when present, are generally very slight, and in most cases, hard to justify monetarily. Of course, if you want to and can afford the Mercedes, buy it, but remember that a good Ford or Chevy will get you to California and back just about as well.

GL and Gud DX -- Ed



Do you have an interesting article, news item, or cartoon which you can contribute to the Hamsplatter? Do you have some spare equipment collecting dust that you want to sell? If so, please contact me, Kris, KF9AW. My day phone is 487-3286, evenings 486-7324. Packet messages can be directed to me on 144.91, cluster KR9U or K1FJ-2, or on 144.97, W9INX.

1994 MEMBERSHIP DATA:

NAME _____ CALL _____ CLASS: N T G A E

MAIL ADDRESS: _____

CITY: _____ STATE: _____ ZIP: _____ - _____

HOME TELEPHONE # () _____ WORK TELEPHONE # () _____

SHALL WE LIST YOUR ADDR/PHONE# IN MEMBER ROSTER? Y N ARRL MEMBER? Y N

MEMBERSHIP TERM: (JAN-DEC) (JULY-DEC, July 1-Dec 31 ONLY)

FAMILY MEMBERSHIP: _____ \$21.00/yr _____ \$10.50/yr immediate family(list all calls)

REGULAR MEMBERSHIP: _____ \$15.00/yr _____ \$7.50/yr licensed member

STUDENT MEMBERSHIP: _____ \$ 6.00/yr _____ \$3.00/yr full time student

ASSOCIATE MEMBER: _____ \$15.00/yr _____ \$7.50/yr unlicensed member

YOUR CHECK NUMBER # _____ PLEASE PAY BY CHECK, IT'S EASIER FOR BOTH OF US!

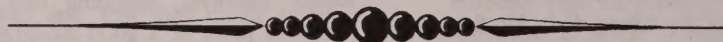
PLEASE RENEW YOUR ARRL MEMBERSHIP THROUGH THE FORT WAYNE RADIO CLUB, INC.

ITS EASY! SEND YOUR ARRL RENEWAL FORM AND A CHECK (payable to FWRC) TO THE CLUB.

FORT WAYNE RADIO CLUB MEMBERSHIP HANDBOOK (CIRCLE THIS PARAGRAPH TO RESERVE ONE!)

Provided at no cost to club members, this handbook provides a full set of information about present and past Club activities, events, and functions. The handbook is available in a clear cover binder, and is upgradeable by easy insertion of new pages into the three-hole binder.

The Hamsplatter



President: Clifford Shreve, N9MKB
Vice President: Jim Pliett, K9OMA
Secretary: Carole Burke, WB9RUS
Board: Al Burke WB9SSE

Treasurer: Theresa Deventer, N9UKM
Communications: Jean Anderson N9PXF
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